

CLAIMS

- 1) Apparatus with directable blades for conveying air to radiators of motor vehicles and the like, comprising a fan (10) having a plurality of blades (12) each
5 radially mounted by means of its own coupling device (31) on a central body (11) and able to be rotationally actuated about its longitudinal axis by means of actuating means (41,42,43) depending on the quantity of air required for correct cooling of the fluid,
10 characterized in that it comprises means (60;160;260;360;460) for engaging/disengaging the transmission of the rotational movement from the means (23,21;321a,21;421a,21) generating said movement to the said fan (10).
- 15 2) Apparatus according to Claim 1, characterized in that said engaging/disengaging means comprise an electromagnetic clutch (60;160;360;460).
- 20 3) Apparatus according to Claim 1, characterized in that said engaging/disengaging means (260) comprise a gripper device (261) able to close around an armature (262) rotationally integral with an element (51) supporting the fan (10).
- 25 4) Apparatus according to Claim 2, characterized in that said electromagnetic clutch consists of a fixed electromagnet (61;361;461), a rotor (21;321;421) integral with the devices (23;321a) generating the
30 rotational movement of the fan (10), and an armature (62;362) integral with an element (51) supporting the fan (10) and movable axially with respect to said support (51).
- 35 5) Apparatus according to Claim 2, characterized in

that said electromagnet (61;361;461) is normally energized.

6) Apparatus according to Claim 2, characterized in that resilient means (164;364) able to exert a pushing force in an axial direction against the armature (62;362) in order to keep it constantly coupled to the rotor (21;321) are associated with said electromagnet (61;361).

7) Apparatus according to Claim 2, characterized in that said electromagnet (361;461) is associated with permanent magnets (66;466) able to keep the armature (362;462) constantly coupled to the rotor (321;421).

8) Apparatus according to Claim 6 or 7, characterized in that said electromagnet (361;461) is normally not energized.

9) Apparatus according to Claim 1, characterized in that said support (51) of the fan (10) is mounted on a support shaft (21a;321a;421a) with the arrangement of associated bearings (52) in between.

10) Apparatus according to Claim 9, characterized in that said support shaft (21a;321a;421a) is fixed.

11) Apparatus according to Claim 9, characterized in that said support shaft (21a;321a;421a) is movable rotationally.

12) Apparatus according to Claim 10, characterized in that the rotor receives the rotational movement from suitable external transmission means (23).

13) Apparatus according to Claim 11, characterized in that the rotor receives movement from the support shaft with which it is integral.

5 14) Apparatus according to Claim 11, characterized in that the armature (462) is integral with the movement transmission shaft (421a) and the rotor (421) is integral with the fan (10).

10 15) Apparatus according to Claim 3, characterized in that it comprises an armature (262) projecting radially from the support (51) of the fan (10) and two jaws (261a,261b), one of which (261a) is fixed and integral with the rotor and the other (261b) movable
15 translationwise in an axial direction and in both senses upon actuation of corresponding actuating means (263).

20 16) Apparatus according to Claim 1, characterized in that the fan (10) is arranged after the engaging/disengaging means.

25 17) Apparatus according to Claim 1, characterized in that the fan (10) is arranged ahead of the engaging/disengaging means.